

| 125 SE FACTORY



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The present manual is primarily intended for certified mechanics working in an appropriately equipped workshop.

Performing the various operations requires both a solid knowledge in mechanics and the set of SHERCO tools specific to the 125 SE-R engines.

This workshop manual serves as a complement to the SHERCO 125 SE-R user's manual

TOOLS LIST 125SE-R

Tooling reference	Designation
1814	Clutch drum block
1815	Ignition block
10480	125 SBS Valve tool control
2067	Oscillating arm shaft tool
2072	Right-hand casing primary shaft bearing tool
2074	Secondary shaft bearing tool
R467	Out-of-gearbox shaft bearing tool
2069	Out-of-gearbox gasket tool
2071	Right-hand drum bearing selection tool
5398	Left-hand drum bearing selection tool
5399	Crankshaft bearing tool
2069	Crankshaft gasket tool
5402	HK0808 needle bearing cage tool (water pump, starter)
1968	Water pump gasket tool
1821	Engine support
1817	Primary pinion block tool
2073	Spring block (finger pointing device)
R462	Magnetic wheel wrench
R464	Crankshaft ring extractor
R453	Selected shaft bearing assembly tool
R444	Gasket selector tool



TECHNICAL SPECIFICATION

ENGINE

Type	Liquidcooled,2-strokingle cylinder
Displacement	124.81CC
Bore diameter/Stroke	54/54.5mm
Gasoline	Unleadedwithanoctaneindexofatleast95mixedwithtwo-stroke oil (2%)
Coolant	With forced circulation
Ignition system	ADC-CDI without a contact breaker, digital advance
Sparkplug	NGKBR9ECMIX
Distance between spark plug electrodes	0.7mm
Piston	Forge aluminum
Motor oil	500ml SAE 5W40
Main transmission	20x72
Gearbox: 1 st 2 nd 3 rd 4 th 5 th 6 th	6speeds 15:33 17:30 19:28 21:26 23:24 25:22
Final transmission	13x51
Clutch	Multi-disc in an oil bath, hydraulic controls
Ignition	Electric starter
Battery	12V4Ah
Alternator	220W

CARBURETOR

Type of carburetor	KEIHIN PWK36 SAG
Needle position	3 rd position from the top
Injector needle	N1EE
Main injector	KEA170(KEA115)
Braking injector	KEP42(KEA38)
Starter injector	85(50)
Opening of the air regulator screws	1T1/4
Sliding gate section	5.5

TECHNICAL SPECIFICATION

CYCLE PART

Frame	Semi-perimeter CrMo steel with aluminum sub frame
Fork	KAYABA USD Ø48mm Closed cartridge
Rear suspension	KAYABA suspension with separate cylinder Aluminum swing arm
Travel Front/Rear	FACTORY 330/330mm RACING 300/330mm
Front brake	rotor Ø 260mm
Rear brake	rotor Ø 220mm
Brake disc	Limit : 2.7mm front et 3.6mm rear
Front tire	90/90-21"
Rear tyre	140/80-18"
Pressure front / Rear	0.9 bar
Fuel tank capacity	10.4LI with 1 liter of reserve
Angle of the steering column	25.9°
Wheel base	1465mm
Weight (without fuel)	95 kg

FORK

Settings – Fork KAYABA USD Ø48 mm

Compression	Comfort	20 clicks back
	Standard	13 clicks back
	Sport	8 clicks back
Rebound	Comfort	18 clicks back
	Standard	13 clicks back
	Sport	10 clicks back
Spring	Rider weight: 65-75 kg	4.0N/mm (Original)
	Rider weight: 75-85 kg	4.2N/m
	Rider weight: 85-95	4.4N/m
Fork oil	01M	345 CC



STANDARD ADJUSTMENT

SHOCK ABSORBER

Factory Settings – KAYABA shock absorber

Low-speed compression	Comfort	20 clicks back
	Standard	14 clicks back
	Sport	12 clicks back
High-speed compression	Comfort	2,5 turns back
	Standard	1.5 turns back
	Sport	1 turn back
Rebound	Comfort	15 clicks back
	Standard	13 clicks back
	Sport	11 clicks back
Spring stiffness	Rider weight : 65-75 kg	46N/mm
	Rider weight : 75-85 kg	48N/mm (original)
	Rider weight : 85-95 kg	50N/mm
Type of oil		K2C

OPERATIONS REQUIRING DISASSEMBLY OR NOT ENGINE

	Operation requiring engine removal	Operation not requiring engine removal
Crankshaft (including the crank kit)	•	
Complete gearbox	•	
Crankshaft bearing	•	
Gearbox bearing	•	
Piston		•
Cylinder		•
Cylinder head		•
Ignition		•
Starter gear set		•
Complete clutch		•
Water pump		•
Speed selection assembly		•



REMOVING / REINSTALLING THE ENGINE

REMOVING THE ENGINE

WARNING

To remove the engine, you must remove the swing arm axle, the swing arm and the rear wheel. To keep the bike from falling, remember to support the chassis with an appropriate jack.

- Drain (refer to the owner's manual)
 - the engine oil
 - the engine coolant
- Remove the seat.
- Disconnect the battery.
- Remove the fuel tank and its covers.
- Disconnect all the electrical wiring connectors from the engine.
(Starter, TPS sensor, water temperature sensor, coil, fuel injector)
- Remove the exhaust.
- Remove the ignition coil.
- Remove the fuel injector body.
- Remove the chain.
- Remove the chain guard.
- Remove the clutch actuating cylinder.

WARNING

When the clutch actuating cylinder is removed the piston is loose. Hold the piston in place using a plastic strap.

- Remove all of the water hoses connected to the motor.
- Remove the left radiator.
- Loosen all of the engine bolts.
- Loosen the swing arm bolt.
- Remove the brackets that attach the cylinder head to the chassis.
- Remove the motor mounting bolts.
- Remove the swing arm bolt.
- Remove the motor.

REINSTALLING THE ENGINE

The motor should be reinstalled in the frame in the reverse order of how it was removed. The following torque values should be utilized.

Tightening torques:

Motor mounting bolts: 60Nm

Swing arm axle nut: 100 Nm

Clutch receiver screws: 10 Nm

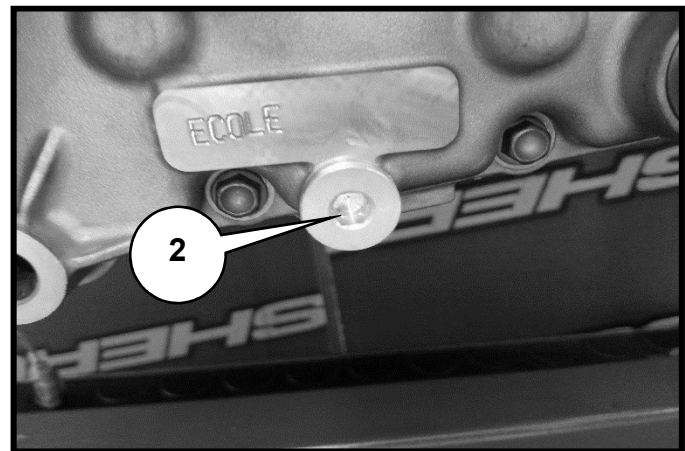
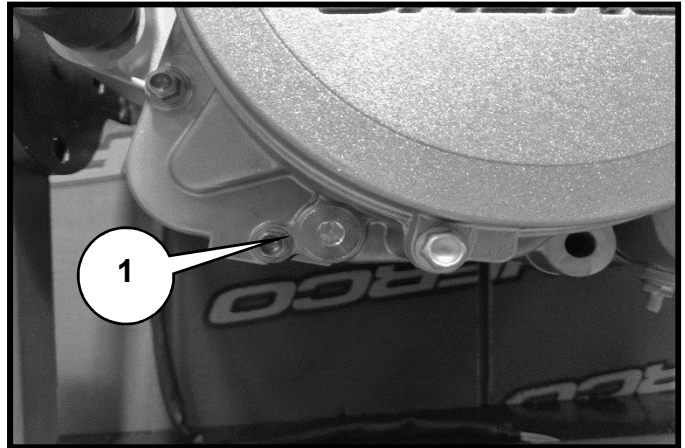
Cylinder head bracket bolts: 23Nm

Exhaust mounting bolts: 10Nm

ENGINE DISASSEMBLY

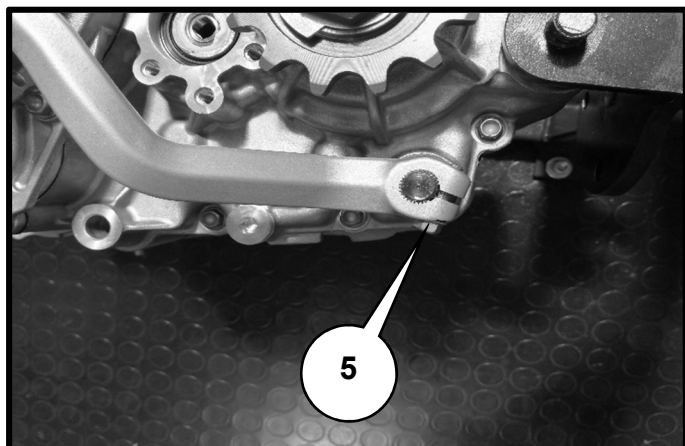
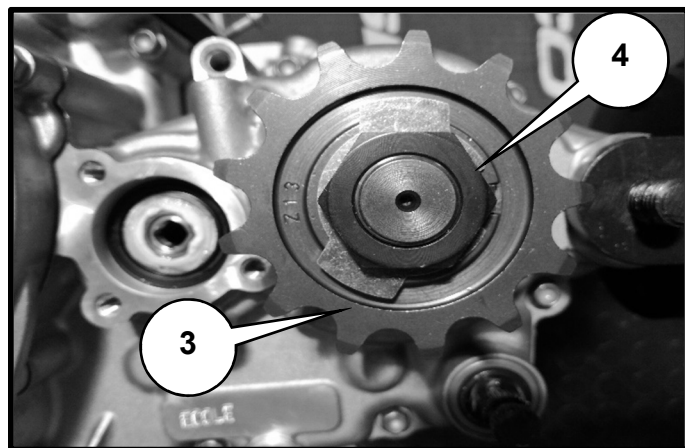
» Gear box drainage

- Remove drainage plugs [1] and [2], let the oil flow out.



» Gear box drainage

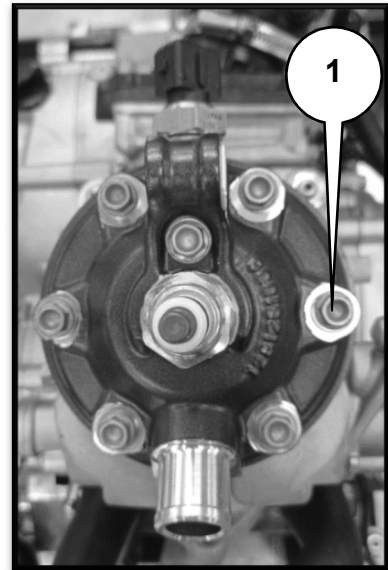
- Unfold the safety washertab [3] using a pushing device.
- Remove the gearbox output pinion [4].
- Remove the screw first [5] first and then the selector.
- Release the clutch control rod.



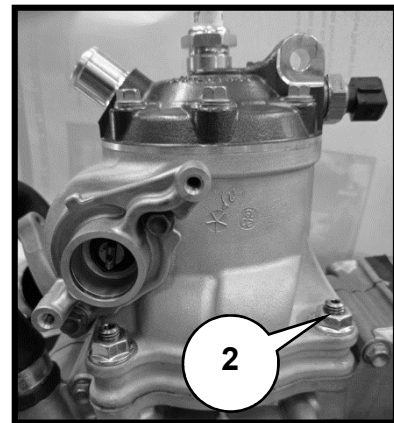
ENGINE DISASSEMBLY

›| Removal of the cylinder head / the cylinder / the piston

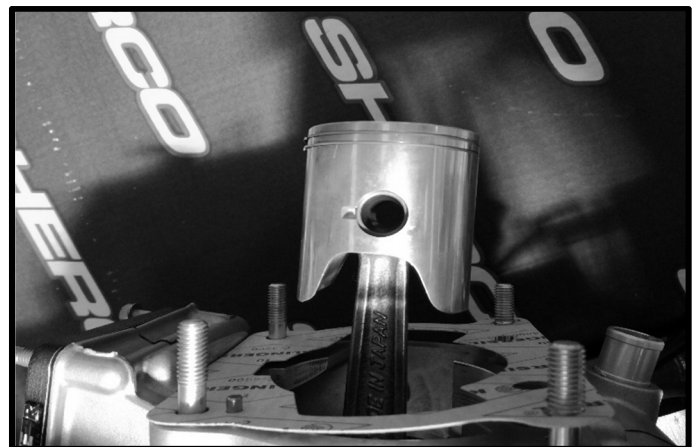
- Remove the shoulder screws **[1]** and release both the cylinder head and the two O-rings



- Remove all four nuts **[2]** and the cylinder
- Cover the casing.



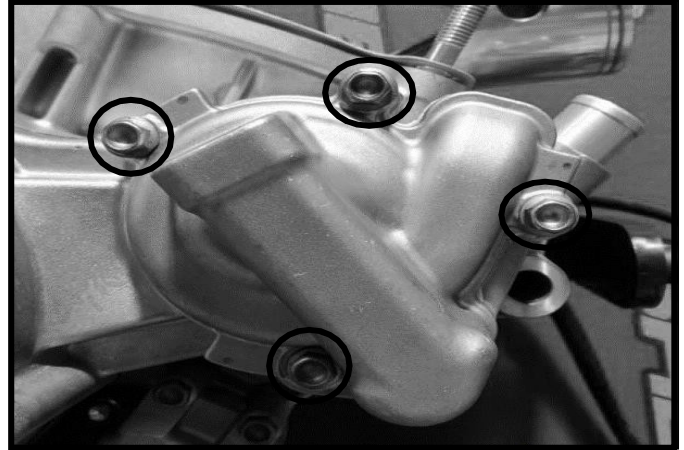
- Remove the piston shaft clips.
- Release the piston shaft.
- Remove the piston and extract the needle bearing from the connecting rod eye.
- Remove the base joint.



ENGINE DISASSEMBLY

›| Disassemble the clutch cover

- Unscrew the water pump screws and cover. Remove the formjoint

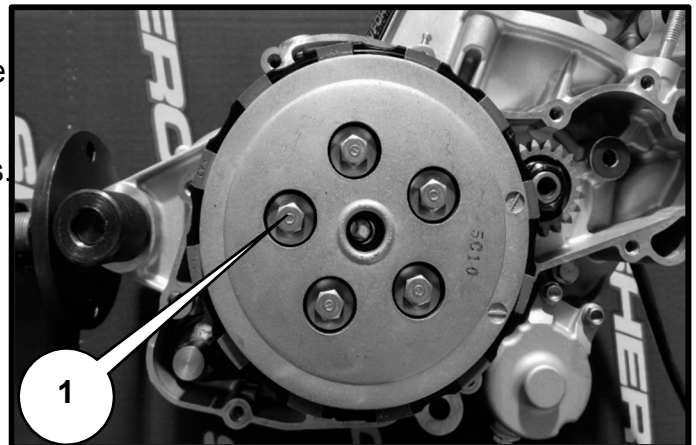


- Remove the screws first and then the clutch casing. Extract the joint.

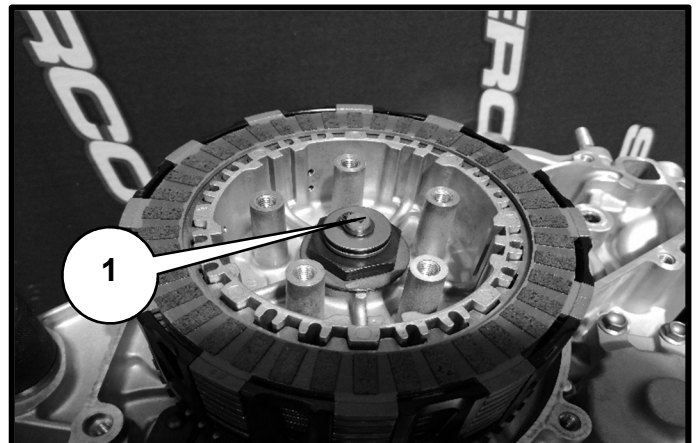


›| Removal of both the pressure tray and discs

- Loosen the screws of the clutch pressure plate [1].
- Remove the screws, springs and spring plates.



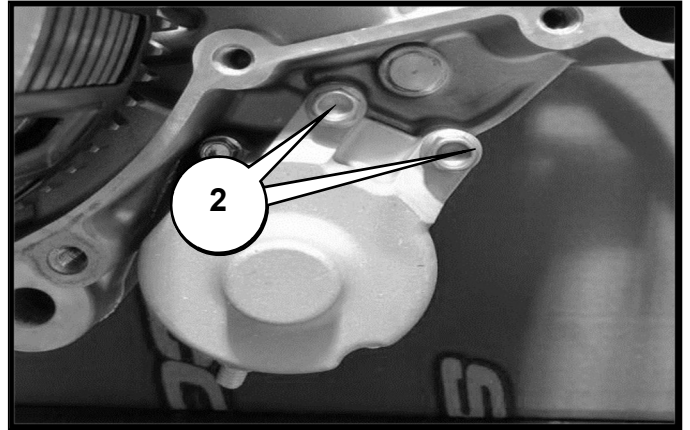
- Release both the pressure plate and discs from the housing.
- Remove the support part [1] positioned in the primary shaft.



ENGINE DISASSEMBLY

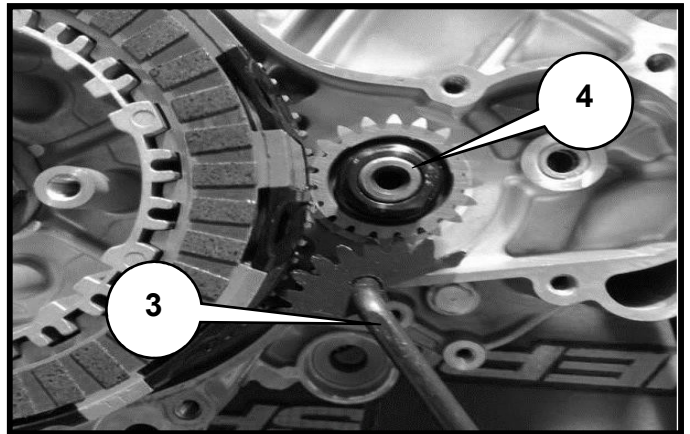
›| Removal of the electric starter

- Unscrew both screws [2]

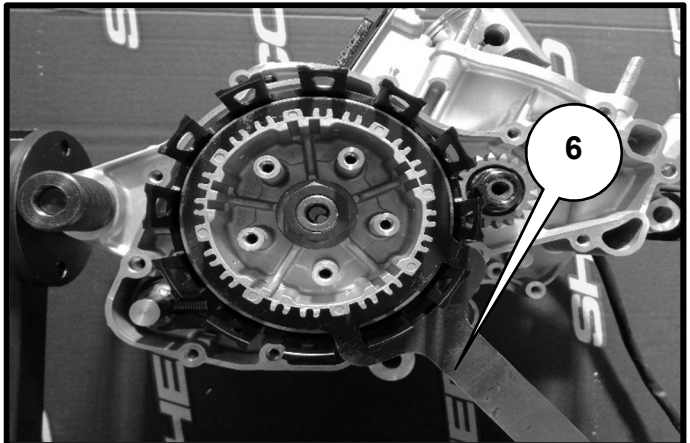


›| Removal of the main transmission

- Block the pinion at the end of the crankshaft using tool reference 1817 [3].
- Unscrew the main transmission nut [4] and then remove it with the tapered washer.



- Insert tool reference 1814 [6], which serves to hold the drum and loosen the nut.
- Remove the tool.
- Remove the drum, the toothed washer, the housing with the needle cage.



- Removal of the main transmission pinion

CAUTION

At the wedge and O-ring.
The main transmission pinion and clutch housing crown match, which is why they cannot be changed separately. They must always be renewed as a pair.



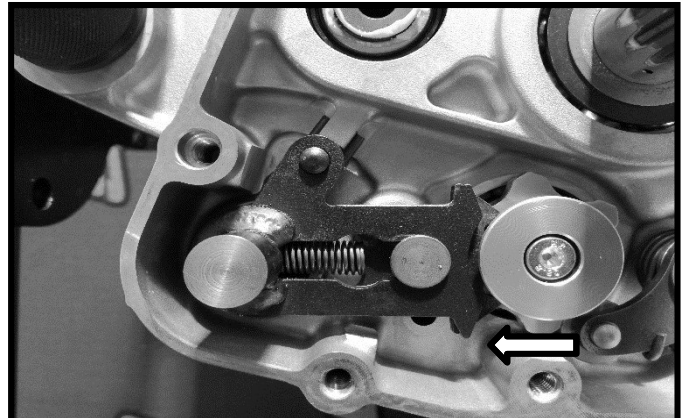
ENGINE DISASSEMBLY

› Removal of the locking mechanism

- With a screwdriver, push back on the scorpion so that it no longer makes contact with the selection star; next, remove the selection shaft

CAUTION

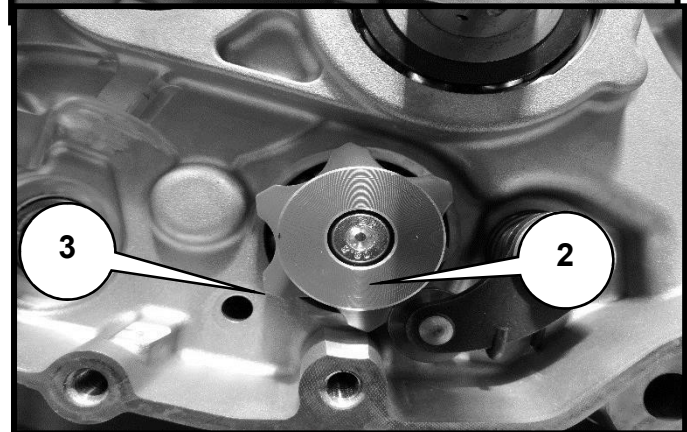
Be extremely careful with the washer left at the casing bottom.



- Unscrew the hex socket screw [2] and remove the selection star [3].

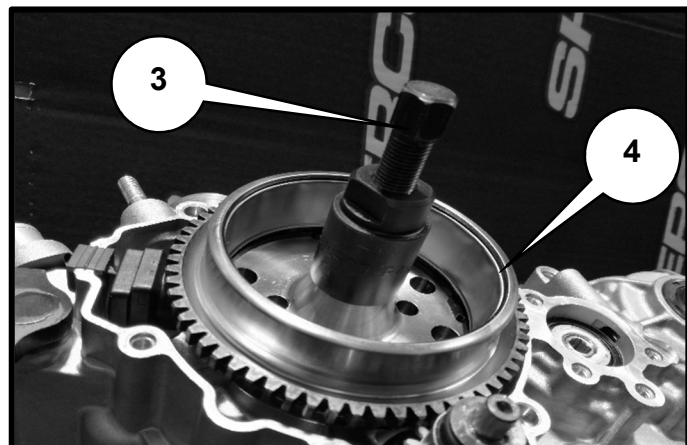
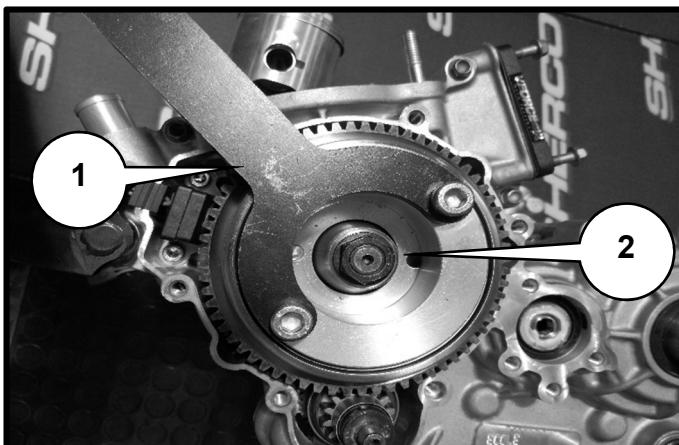
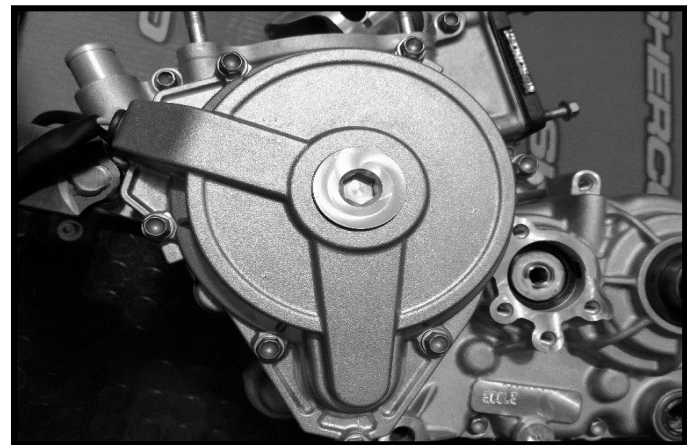
CAUTION

When handling the selection star indexation slug. The locking lever arm must only be retracted when changing the casing.



› Removal of the ignition

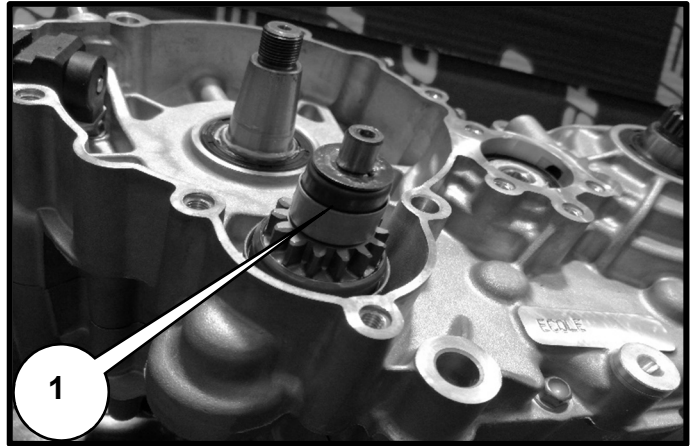
- Hold the steering wheel with tool 1815 [1] and unscrew the shoulder nut [2].
- Introduce extractor R462 [3] and tear out the magnetic wheel [4].



ENGINE DISASSEMBLY

›| Removal of the starter

- Take out the starter [1]



›| Intake pipe and clapper box

- Remove all 4 screws [2]
- Remove the pipe clapper box and the gasket



›| Separate out the half casings

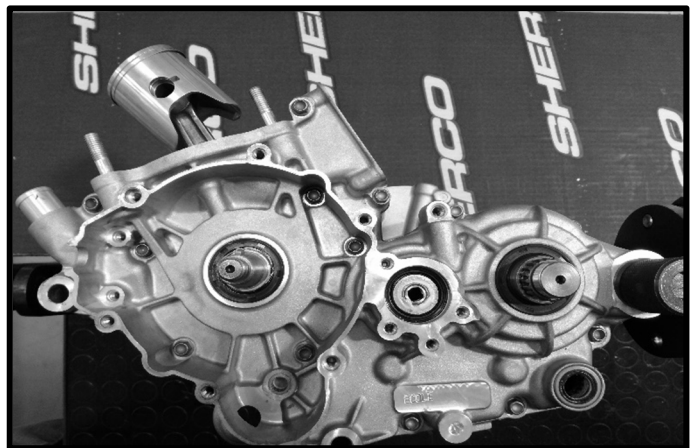
- Reposition the engine so that the ignition side is facing you.
- Remove all the fastening screws.
- Now lift the left half-casing by gently striking the gearbox output shaft with a plastic mallet in order to dislodge the other half-casing.

CAUTION

Avoid to the greatest extent possible introducing a screwdriver or any tool between the half-casings for the purpose of separating them. You might damage the parting surface.

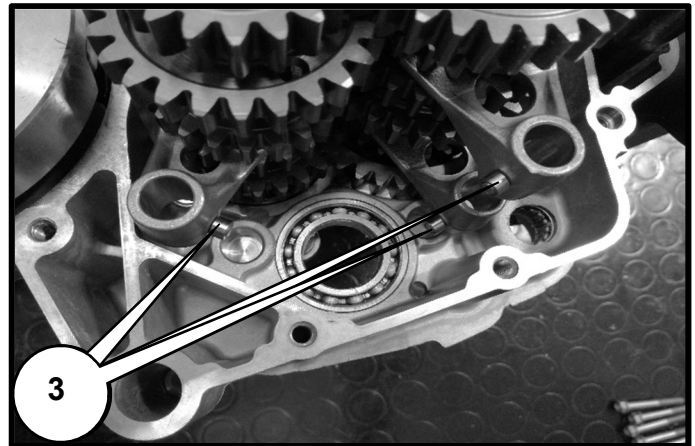
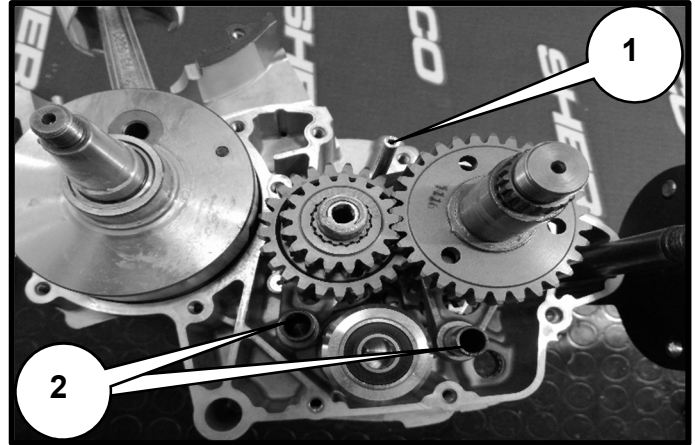
CAUTION

Be careful when working with the set rings of gearbox shafts. They might stay stuck inside the casing.



› Removal of the speed selection

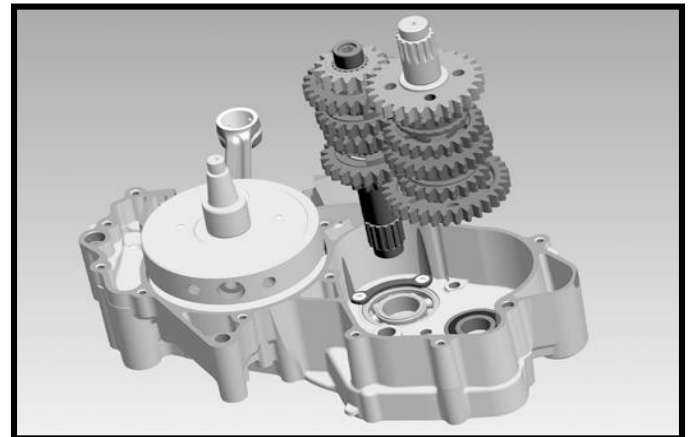
- Remove the transmission gearbox lubrication tube **[1]**.
- Remove the two selector fork shafts **[2]** and push them to the side to free the drum.
- Now disengage the selection drum from its bearing.
- The selector forks. Remove



CAUTION

During this removal step, be sure not to lose the small rollers **[3]** on the fork caps. Indicate the association of these rollers with the corresponding forks for purposes of reassembly.

- Remove both the primary and secondary shafts from their bearing



ENGINE PARTS CONTROL

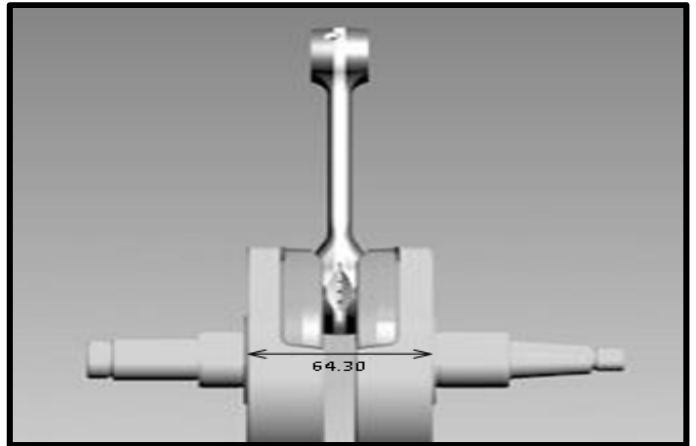
›) Connecting rod assembly

- If the roller bearings have been changed, then the internal ring that sits against the balance weight must also be changed.
- Heat the R464 tool to roughly 150°C, then immediately insert it onto the internal ring.
Ensure that the tool sits squarely on the ring in order to more effectively transmit the heat and extract the ring
- To install the new ring, heat the tool once again to approx. 150°C. Next, insert the new ring and immediately position it on the reach of the connecting rod assembly



›) Balance masses, verification of the exterior side

- Using a caliper, measure the outer distance of the balance masses.
Exterior value: 57.0 +/- 0.1 mm

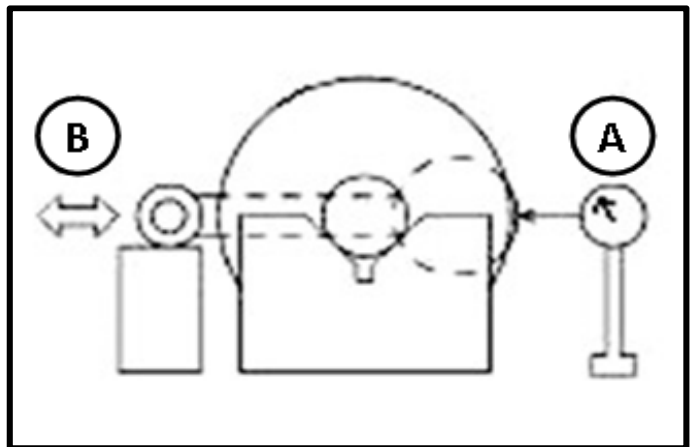


›) Radial clearance of the crank head

- Install the crankshaft on the V and place a dial gauge [A] against the crank head.
- Push [B] the crank head first toward the gauge and then in the opposite direction. The difference between these two measurements corresponds to the radial clearance.

Crank head radial clearance:
Standard: 0.015mm - 0.025mm
Tolerance limit: 0.06 mm

If the radial clearance exceeds the tolerance limit, the crankshaft must be replaced



›) Crank head lateral clearance

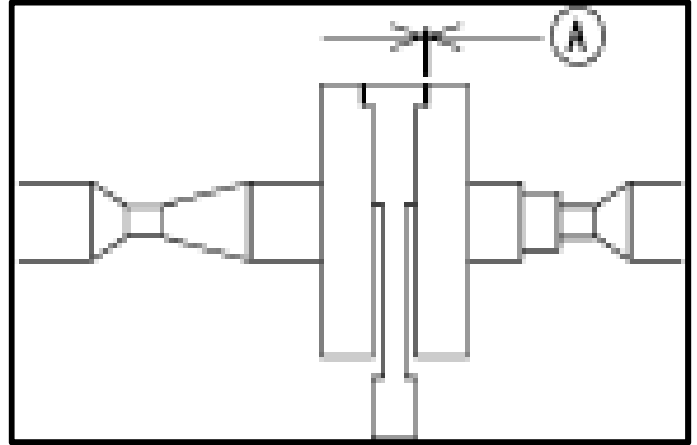
- Measuring the lateral clearance of the crank head [A].

Crank head lateral clearance:

Standard: 0.7 mm - 0.9 mm

Tolerance limit: 1.15 mm

If the clearance exceeds the tolerance limit, replace the crankshaft.



›) Control of the crankshaft radial runout

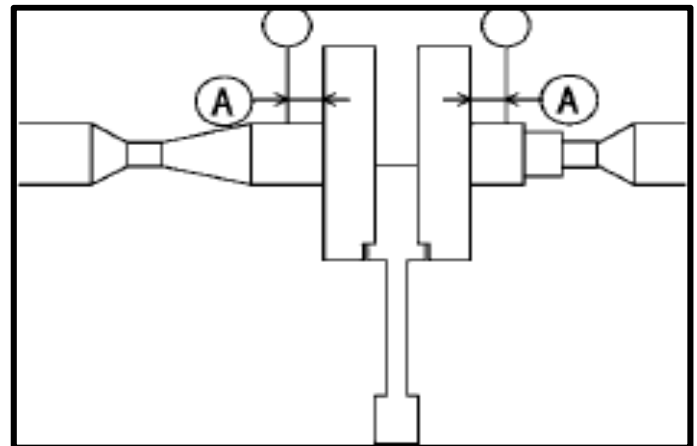
- Set the crankshaft on an alignment device or on shims laid out in a "V" pattern, and place a gauge as shown on the image.
- Now slowly turn the crankshaft. The maximum difference between the measurements corresponds to the level of crankshaft eccentricity.

Out-of-roundness:

Standard: 0.03 mm maximum

Tolerance limit: 0.05 mm

If the eccentricity is incorrect, replace the crankshaft or else align it to ensure lying within the tolerance limits.



›) Piston

If you introduce a piston that has already been in use, the following points would need to be verified:

Skirt: search for possible smears (clamping). Slight smears may be removed with a soft stone.

Segment grooves: The segments must not snag in their groove. To clean in this spot, an older segment or emery cloth (400-grain).

The segment retainers must be snugly fastened and not be worn parts.

Segments: Verify the condition and clearance at the cross-section.



ENGINE PARTS CONTROL

» Cross sectional clearance

- Insert the segment into the cylinder and install it with the piston (at approx. 10 mm from the upper edge of the cylinder).
- With a shim, it is possible to measure the cross-sectional clearance.
Cross-sectional clearance: max. 0.40 mm

CAUTION

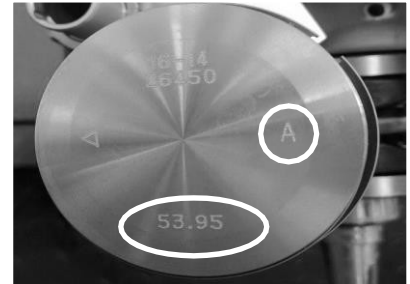
Should the clearance be greater than indicated, it would be necessary to check the condition of both the cylinder and piston. If these measurements lie within the tolerance dimensions, replace the segment.

» Verification of the state of cylinder wear / Piston

- To detect cylinder wear, the bore diameter is measured using a micrometer located approx. 10 mm from the upper edge of the cylinder. Take readings at several spots to identify the potential presence of ovalness

Cylinder	Cylinder bore diameter	Piston
125	54.000 - 54.015	A
	54.010 - 54.025	B

Cylinder	Piston Diameter	Piston
125	53.94	A
	53.95	B



CAUTION

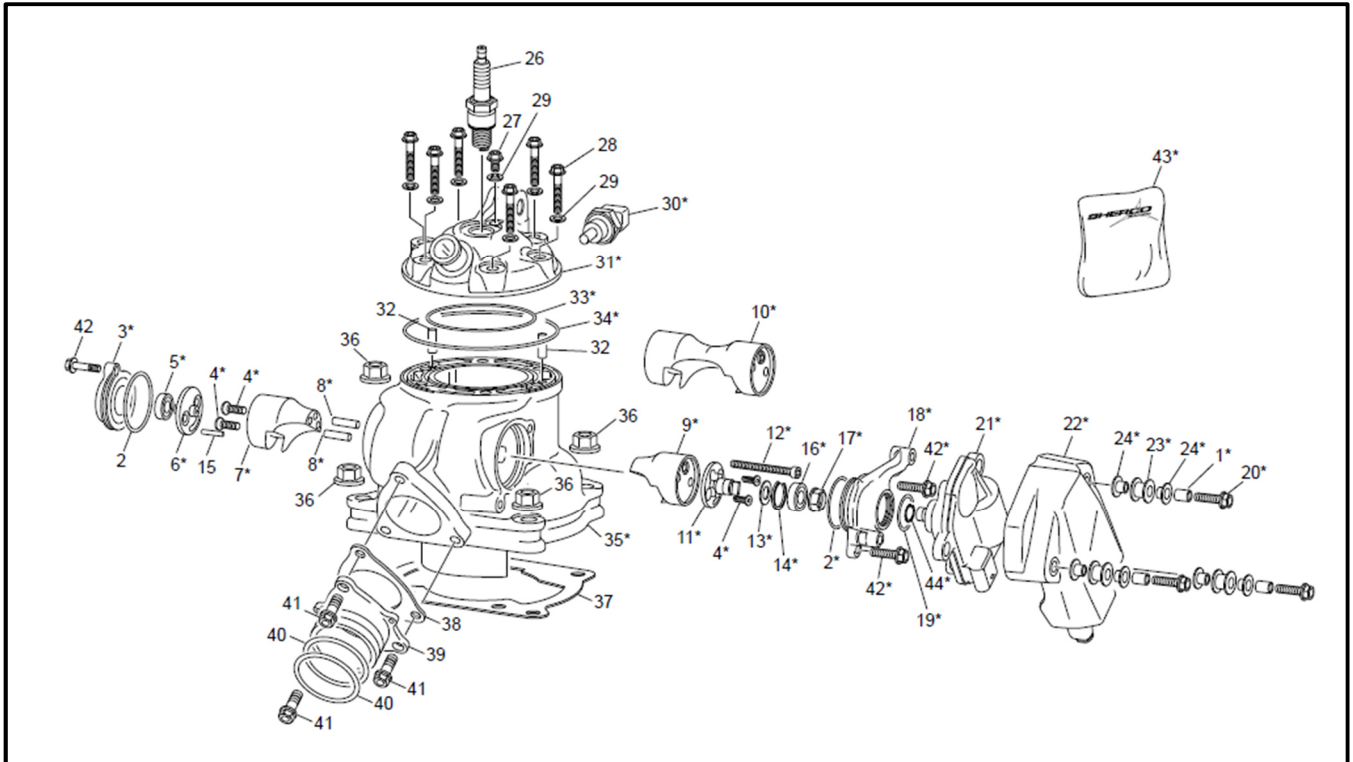
If the cylinder diameter exceeds for example 54.025 mm, the interior would need to be relined (with Nikasil coating) or the cylinder replaced.
Before relining the cylinder, all exhaust valve parts would need to be disassembled. The piston size is engraved on the top of the piston, and the cylinder dimension is engraved on the right side cylinder.

Using a gauge, measure the height difference between the piston and the cylinder.

The clearance **must be 0**; otherwise, use another head gasket in order to obtain the desired value.

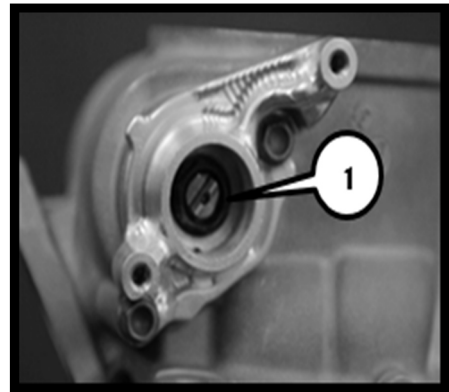


› Disassemble the exhaust valve system

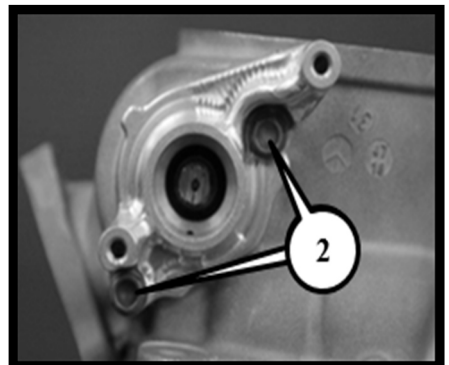


Disassemble all parts, clean them, and verify their condition and state of wear. For this step, follow the disassembly and control procedure.

- Remove the M10 [1] nut from the valve shaft using a 13mm wrench

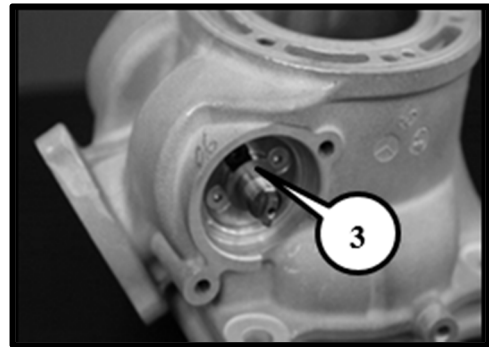


- Remove the two M5 screws [2] from the valve motor bracket and remove the bracket from the cylinder.

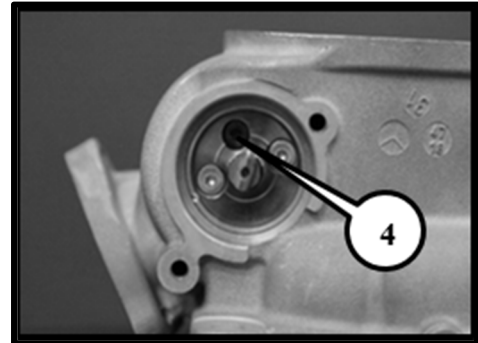


ENGINE PARTS CONTROL

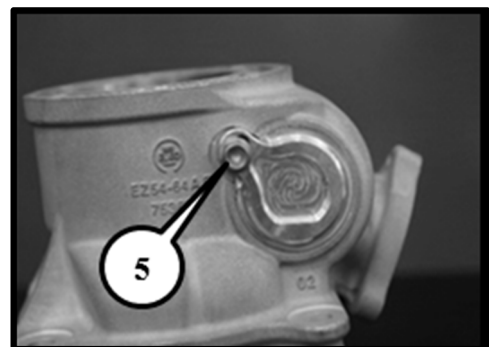
- Remove the washers [3] from the axle.



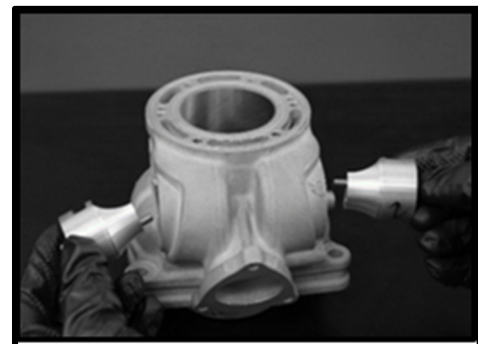
- Remove the connecting screw [4].



- Remove the M5 screw [5] and remove the right valve cover.



- Disassemble the half valves on either side of the cylinder.

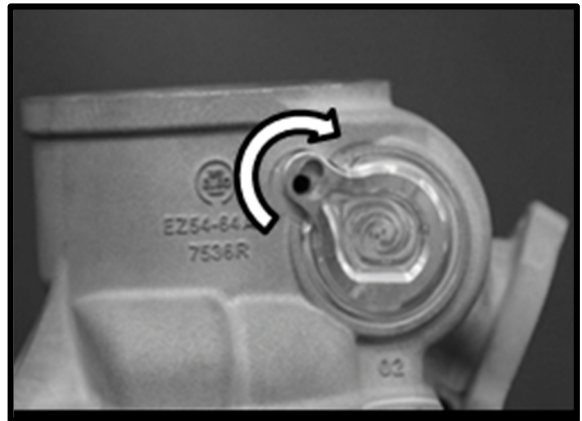


CAUTION

Before to reassemble the valve, clean all the parts and making sure that there is no trace of seizure on each side of the valve.

› Assemble the exhaust valve system

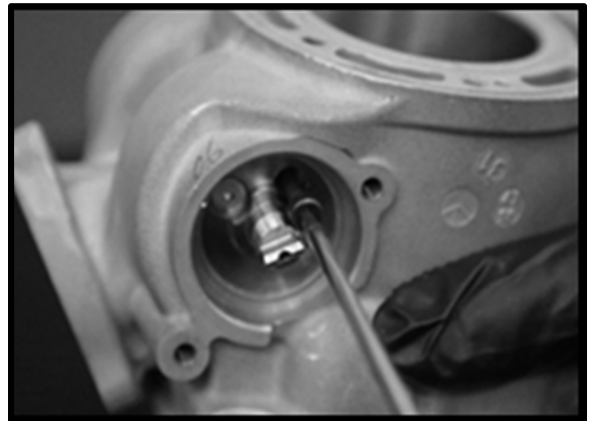
- Refit the two half valves then fit the right valve cover making sure that it is in the up position.



- Install the M5 screw without tightening it.



- Fit the connecting screw of the half-valves and tighten to **6 Nm**.



- Fit back the setting washers on the valve shaft.



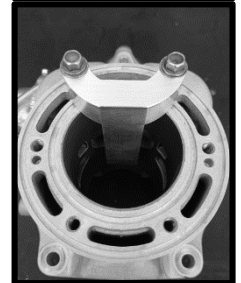
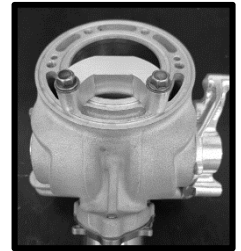
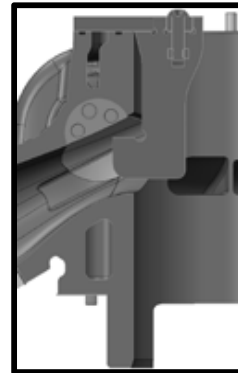
› Exhaust valve setting

Position the valve motor bracket and tighten the M5 screws to **8 Nm**.

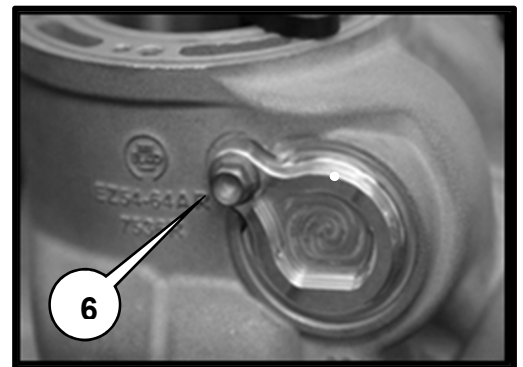


Install the valve adjustment tool **ref 10480** as indicated on the drawing.

Position the exhaust valve against the stop on tool 8028 then tighten the valve shaft nut to **20 Nm**.



One time all is in place and tightened, tighten the M5 screw [6] of the valve cover to **8 Nm**.



Making sure that there is not too much lateral free play and that the valve assembly turn properly without hard point.

In case of hard point or too much lateral free play, adjust it by changing shims on the valve axle.

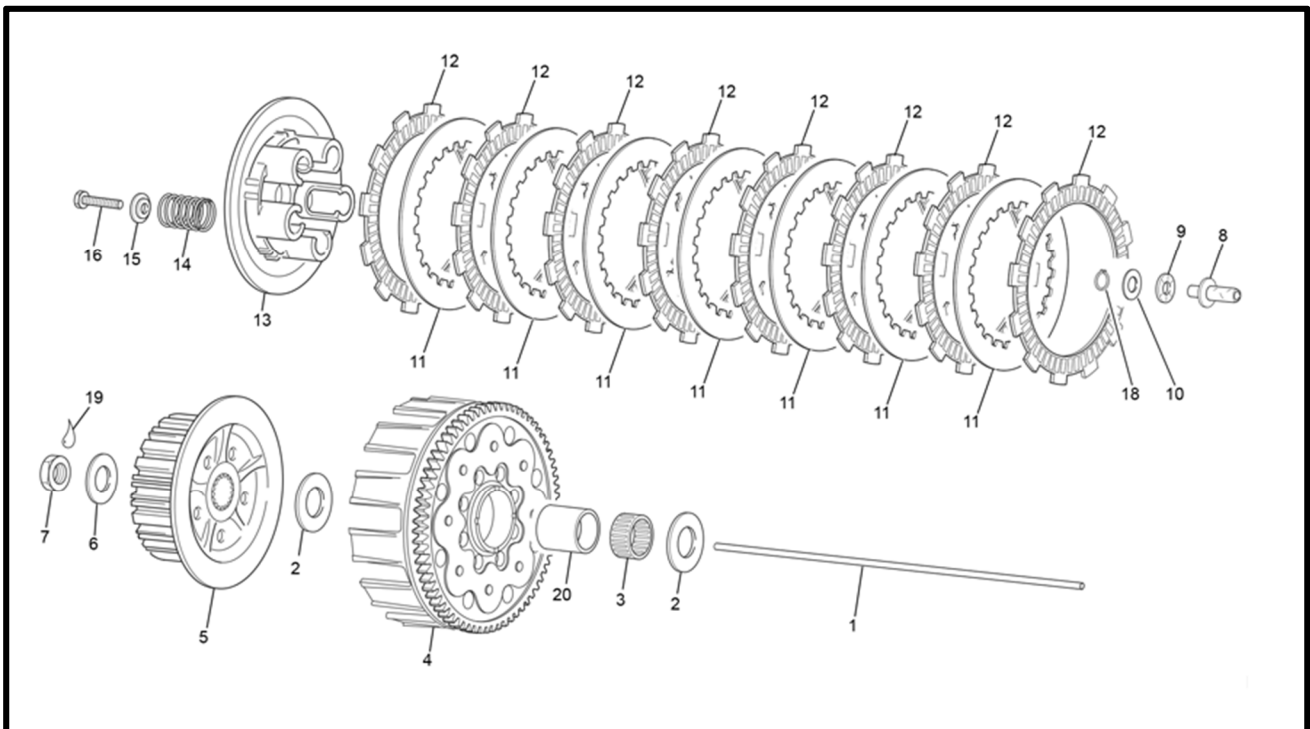
Rondelle de calage / Adjusting shim / Arandela de ajuste	
0,2 mm	Ref 7628
0,3 mm	Ref 7629
0,5 mm	Ref 7572

› Clapper box pipe, Pipe intake sleeve

- Over time, the carbon tabs gradually lose their elasticity, which in turn causes a loss in power.
- Replace the worn or damaged gearbox.
- Verifier the condition of the intake sleeve, especially if it is not split.



› Clutch



- Needle **[3]**: verify state of wear.
- Push Rod **[1]** : Verify the state of wear:
Minimum length = 162,5mm
- Springs **[14]**:Verify the length.
Minimum spring length 37,5mm
- 8 lined discs **[12]**: **Standard thickness:** 2.95 mm / **threshold thickness:** 2.7 mm / deformation threshold: 0.3 mm
- 7 smooth discs **[11]**: **Standard thickness:** 1.4 mm / **threshold thickness:** 1.3 mm / deformation threshold: 0.3 mm



ENGINE REASSEMBLY

For the blow-up drawings, please refer to the 125SE-R spare parts catalogue

» Connecting Rod Assembly

- Insert the connecting rod assembly into the ball bearing by the top, in exercising precaution, until reaching the stop

CAUTION

The crank must be positioned on the cylinder side.

» Transmission Gearbox

- Coat lubricant on the fork guiding tip and insert the rings [1] from the top
- Fasten the supporting washer[2] onto the secondary shaft
- Present the primary and secondary shafts together, then drive them into their respective bearings until reaching the stop.

CAUTION

Any fork used must be paired with its original pinion as well as its roller.

- Hook the forks into the grooves of the moving pinions and insert the drum into its bearing

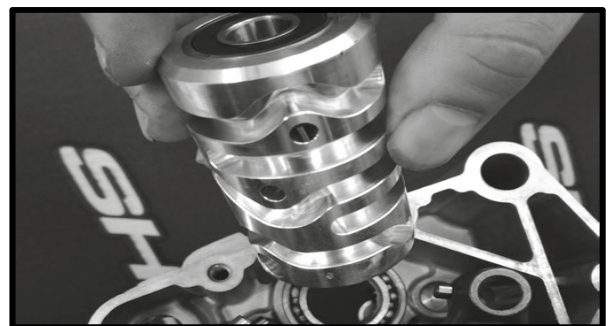
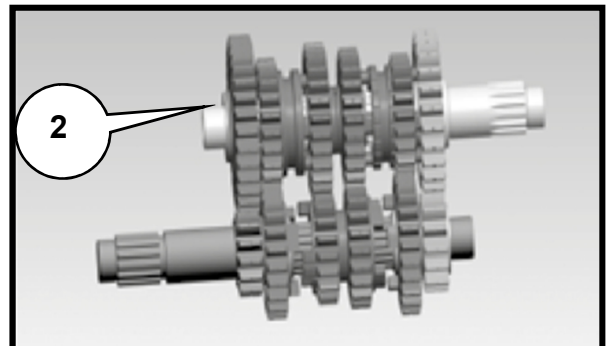
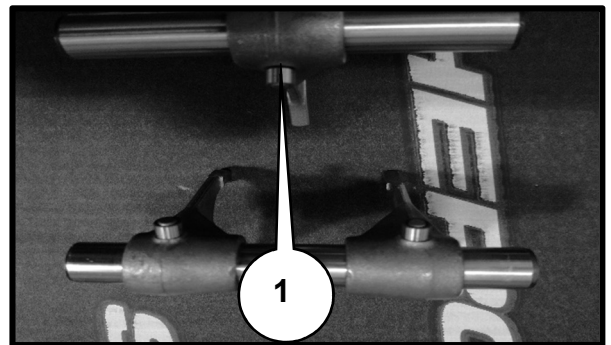
CAUTION

When hooking the forks into the drum pay special attention to prevent the rollers from falling off of the tips

- Lubricate the fork axes and insert them into the forks. Drive the forks into their housing in the casing until reaching the stop

CAUTION

The gearbox shafts must now turn without hitting any hard points



ENGINE REASSEMBLY

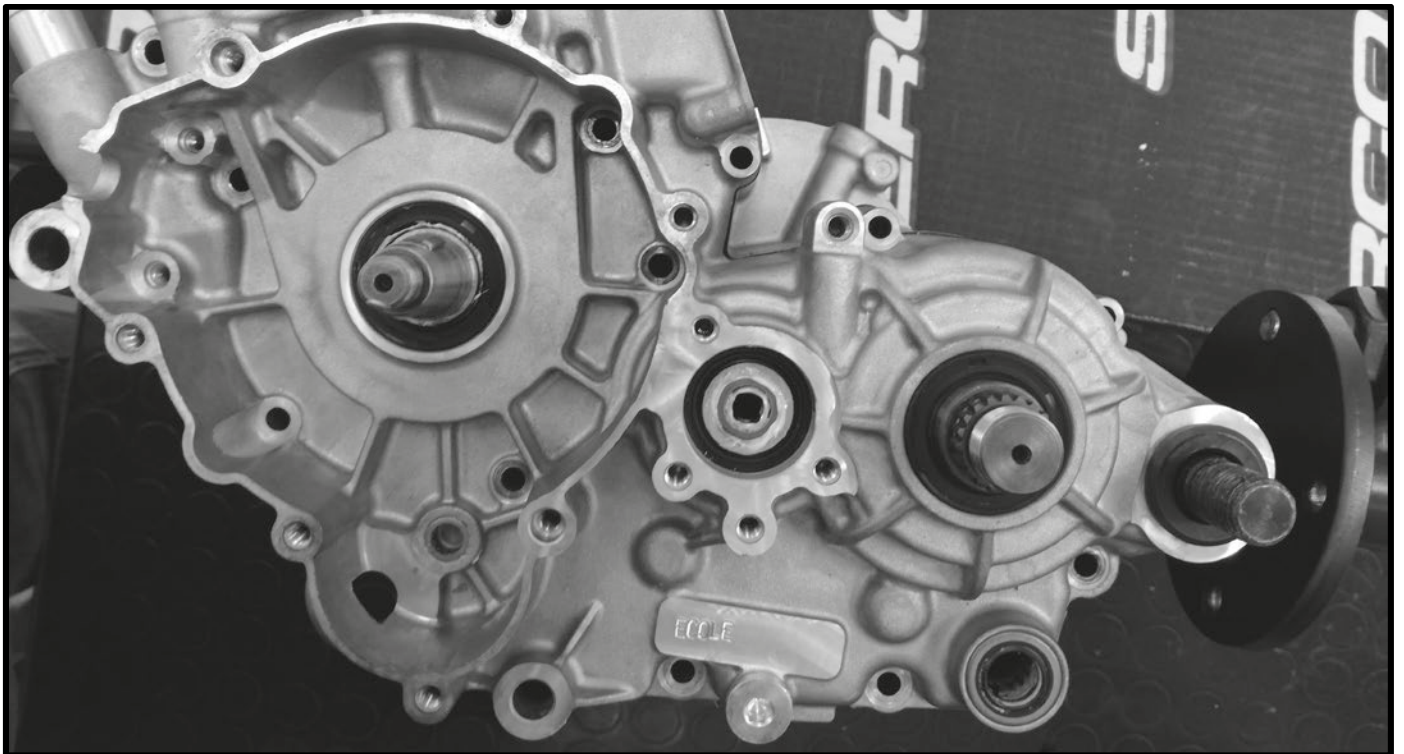
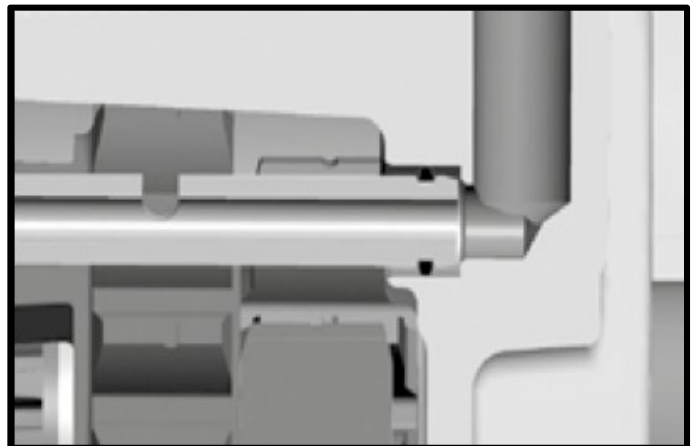
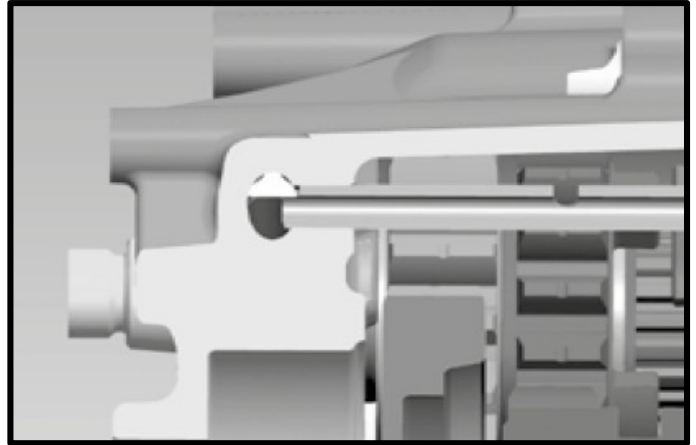
›) Assembly of the half casings

- Install the transmission gearbox lubrication tube on the right-hand half-casing.
- Install the O-ring on the gearbox lubrication tube.

CAUTION.

Beware of the tube indexation, flat spot on the oil plug rivet side.

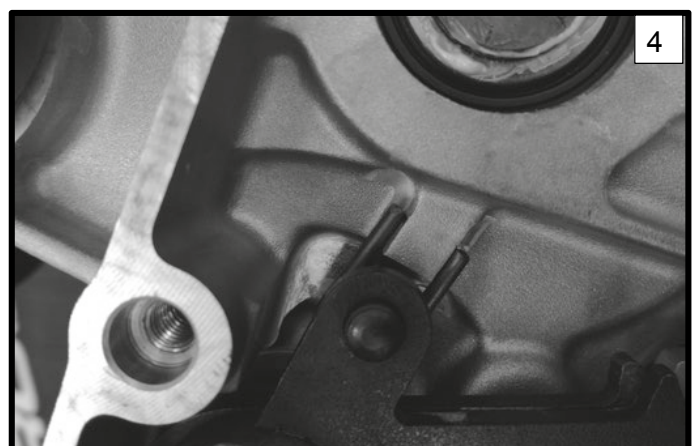
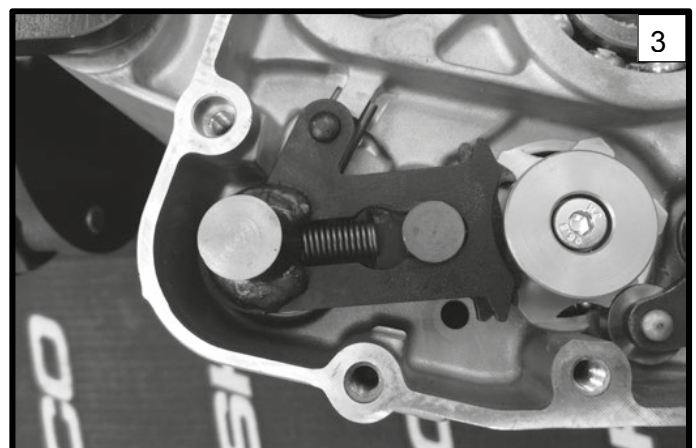
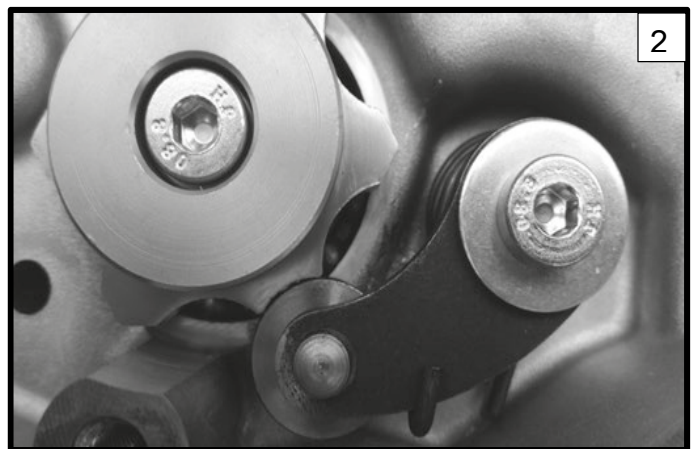
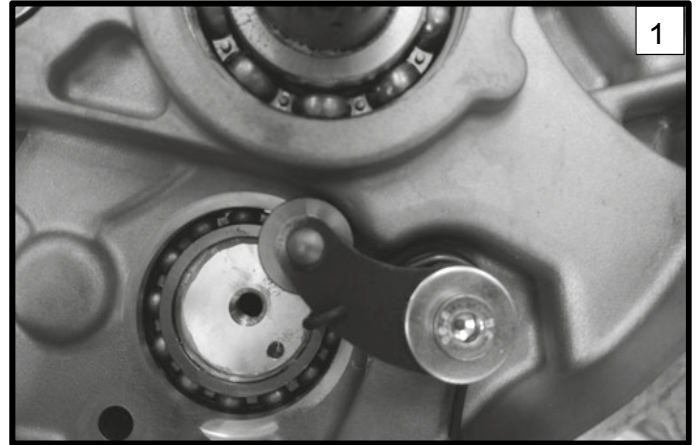
- Ensure that the centering rings are in place on the right half-casing and moreover that the gearbox shaft washers are in their appropriate place.
- Lubricate the gaskets of the left half-casing and proceed with installation of this half-casing.
- Introduce the screws and tighten them to 10 N-m.
- Next, use a plastic mallet to lightly strike the connecting rod assembly and verify that the shafts are turning without any hard point.



ENGINE REASSEMBLY

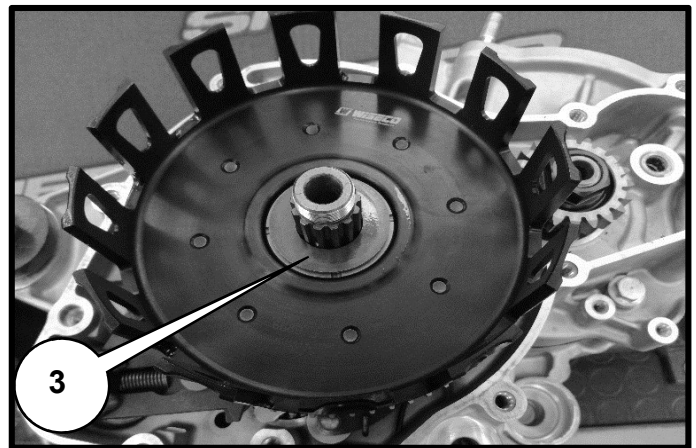
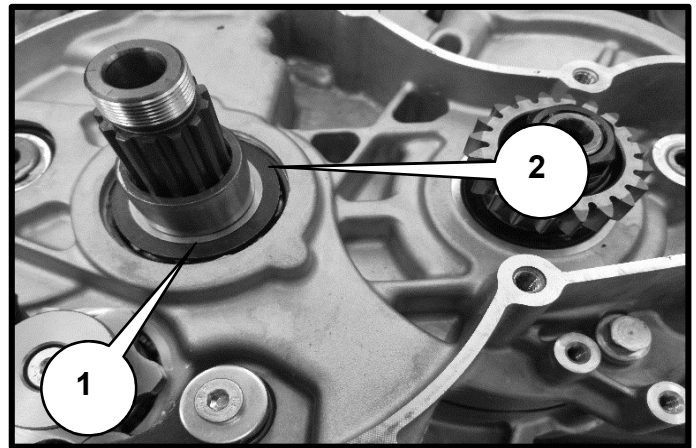
› Selection mechanism

- Place the spring into the casing with the curved strand pointing upwards.
- Insert the spacer, the locking finger and the washer, then coat the CHC M6 x 20 screw with blue brake fluid and assemble all the parts.
- Hook the spring to the lever arm.
The other end of the spring must lean against the casing [1].
- Install the selection star indexation slug on the drum.
- Pull the locking lever arm backward in order to install the selection star.
- Coat the screw with blue brake fluid and then assemble the selection star on the drum. [2]
- Lubricate the axis of the now assembled selection and insert it into the needle bearings without neglecting the set ring.
- When the prong abuts the selection star, push it so that the shaft drops all the way to the bottom. [3]
- Verify whether the return spring strands are positioned against the finger in the casing on both sides [4]
- Install the selector and shift through all the speeds. Upon shifting through the entire range of speeds, the transmission gearbox shaft output needs to be rotated. Remove the selector once again.

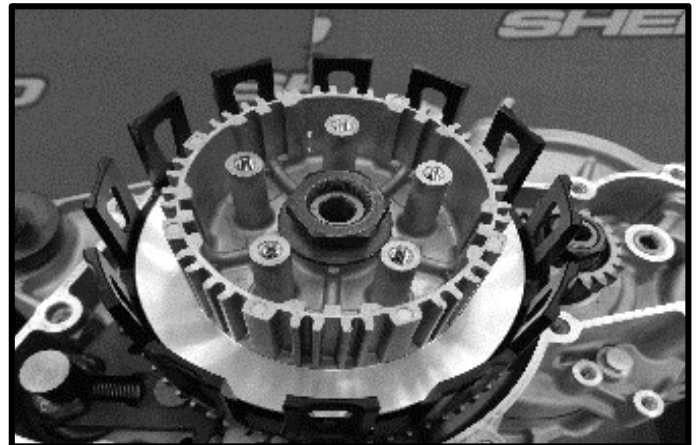


› Main transmission and clutch

- Lubricate the connecting rod assembly gasket.
- Install the half-moon wedge in its housing.
- Insert the pinion with the shoulder in a downward position onto the crankshaft shank.
- Insert the washer [1], housing spacer and pre-lubricated needle cage [2] on the main shaft.
- Raise the clutch housing and its washer [3].
- Place the blue brake fluid on the main shaft threading.



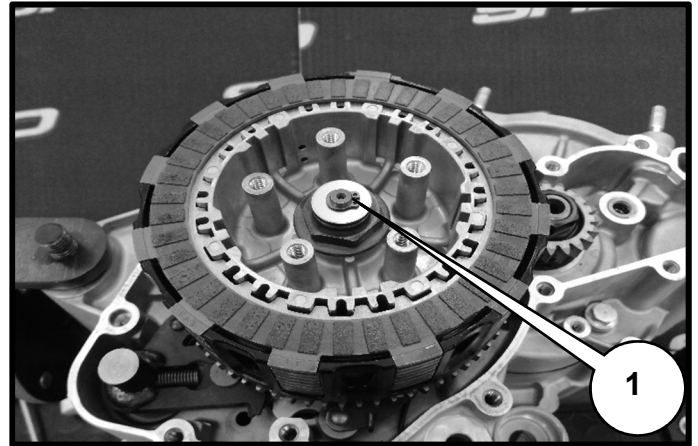
- Assemble the clutch drum and its nut on the main shaft in applying red brake fluid and a new safety washer.
- Introduce tool reference 1814 and tighten the nut to **100 N-m**.
- Apply blue brake fluid on the crankshaft threading.
- Raise both the tapered washer and the nut.
- Block the main transmission using tool 1814 and then tighten the pinion nut at the end of the crankshaft to 100 N-m in adding red brake fluid.
- Remove tool 1814 and verify the absence of any hard point in the main transmission by turning the connecting rod assembly



ENGINE REASSEMBLY

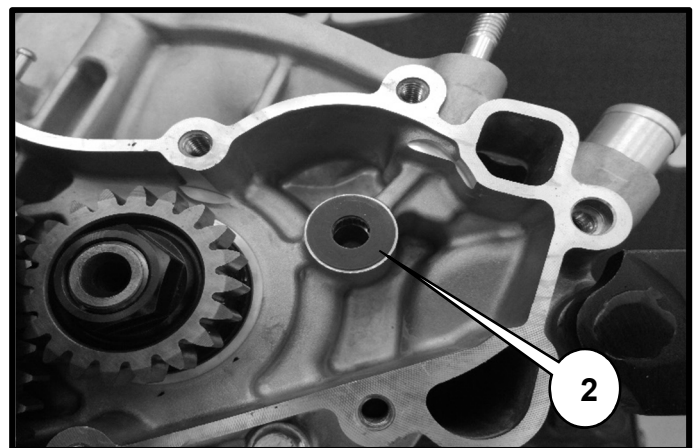
›| Clutch discs pressure plate

- Oil the push finger [1] and insert it onto the main shaft.
- Prior to the assembly step, oil the lined discs.
- Begin with a lined disc. The 8 lined discs and the 7 smooth discs are positioned in an alternating pattern.
- Install the pressure plate along with the springs, the spring plates and the screws.
- Tighten the screws to **10 Nm** in a cross pattern.



›| Clutch casing

- Verify whether the two centering bushings are indeed well installed.
- Introduce the casing joint and hold it in place with a bit of lubricant.
- Stick the water pump set ring [2] with a bit of lubricant.
- Present the clutch casing while ensuring that the water pump assembly has been properly installed. The connecting rod assembly needs to be rotated so that the water pump can mesh at the end of the crankshaft.
- Install the M6 hex sprocket screws and tighten to **10 Nm**.
- Verify that all shafts rotate without encountering any hard point



CAUTION.

Install a new joint on the M6X40 screw and on the coolant drainage screw.



›| Piston and cylinder

- Oil the parts well before lifting.
- Insert the needle bearing into the foot crank, position the piston (the arrow on top of the piston is pointed toward the exhaust).
- Place the shaft and clips with the open side downward.
- Install the base joint.
- Properly position the segments, with the reference pointing upward.
- Insert the pre-fitted cylinder, fasten the cylinder with 2 nuts on opposite sides.
- Raise the other two screws and washers, then tighten to **20 Nm**.



›| Cylinder head

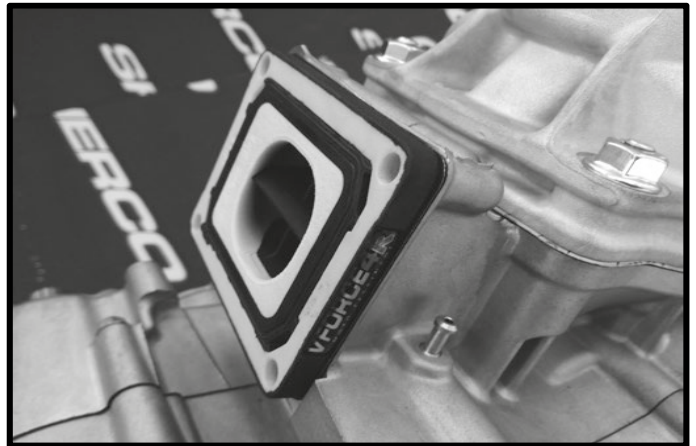
- Clean the parting surfaces of the cylinder as well as the cylinder head.
- Position the 2 centering slugs on the cylinder.
- Install the cylinder head.
- Place the M8 shoulder screws with new copper washers.
- Tighten three times and in a cross to 10 N-m.



ENGINE REASSEMBLY

›| Clapper box and pipe intake

- Install a gearbox joint with new clappers.
- Place the complete clapper box into the intake pipe.
- Assemble the intake pipe with the four M6 screws and its metal collar.



›| Gearbox output pinion

- Place the gearbox output pinion on the secondary shaft.
- Apply blue brake fluid on the threading.
- Insert the safety washer.
- Install the nut and tighten to 100 N-m.
- Re-bend the safety washer release finger on the nut



›| Assembly of the ignition starter

- Install the ignition starter.
- Lubricate the pinions using spay-on grease.



› Ignition assembly and its cover

- Place the half-moon wedge in its housing on the connecting rod assembly.
- Insert the rotor on the connecting rod assembly.
- Apply blue brake fluid on the threading.
- Insert tool 1815, install the nut and tighten to 80 N-m.
- Set up the 2 centering bushings.
- Introduce a new joint and fasten the ignition cover.

› Assembly of the electric starter

- Replace the O-ring on the starter by a new joint.
- Apply a bit of lubricant on the O-ring.
- Insert the starter into the right-hand casing.
- Fasten the starter with the 2 hex sprocket screws.
- Finish the step by oiling and then inserting the clutch control rod into the main shaft **[1]**.
- Assemble the speed selector with its screw and washer.
- Assemble the two drainage plugs with a new joint

CAUTION.

The transmission gearbox needs to be filled when the engine is returned to its frame; otherwise, a portion of the oil will leak from the main shaft

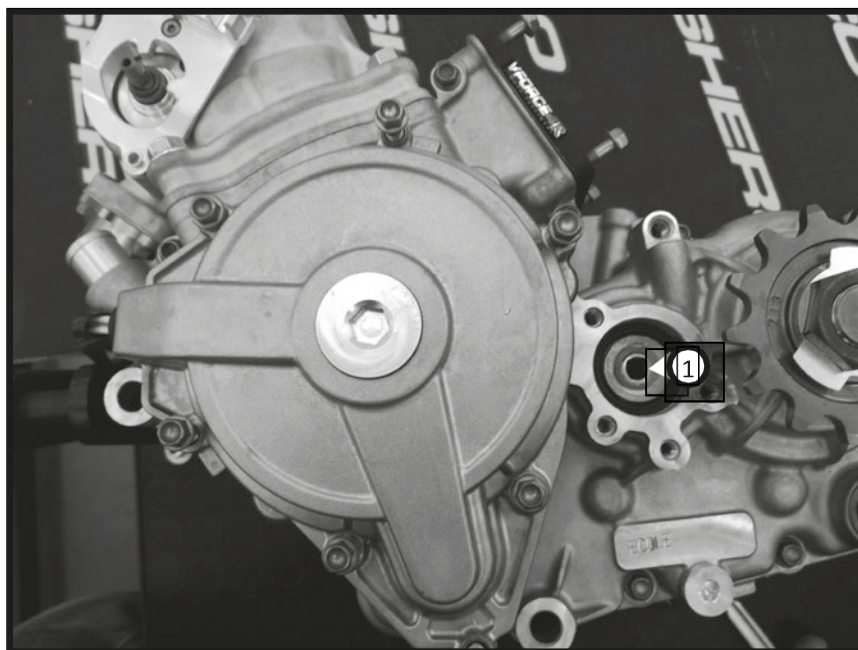


TABLE OF TIGHTENING TORQUES

Standard tightening torque	Brake fluid	
M5	6 Nm	
M6	10 Nm	
M8	24 Nm	
Chassis tightening torque	Brake fluid	
Rear wheel nut	100 Nm	
Rear cradle fastening screw	24 Nm	•
Front wheel nut	40 Nm	
Yoke foot clamping screw	15 Nm	
Brake pad axis screw	8 Nm	•
Lower yoke tee clamping screw	12 Nm	
Upper yoke tee clamping screw	17 Nm	
Engine screw	60 Nm	
Oscillating arm nut	100 Nm	
Cylinder head - frame screw	24 Nm	

Engine tightening torque	Break fluid	
Revolution sensor screw	8 Nm	•
Coolant drainage screw	10 Nm	
Clutch slave cylinder screw	10 Nm	
Cylinder head, cross-patterned tightening torque	10 Nm	
Crankshaft inspection plug	8 Nm	
Clutch pressure plate screw	10 Nm	
Water pump casing screw	10 Nm	
Ignition wheel nut	80 Nm	•
Clutch drum nut	100 Nm	•
Main transmission pinion nut	100 Nm	•
Ignition casing screw	10 Nm	
Central casing screw	10 Nm	
Drum screw	10 Nm	•
Starter screw	10 Nm	
Cylinder screw	20 Nm	
Gearbox output pinion nut	100 Nm	•

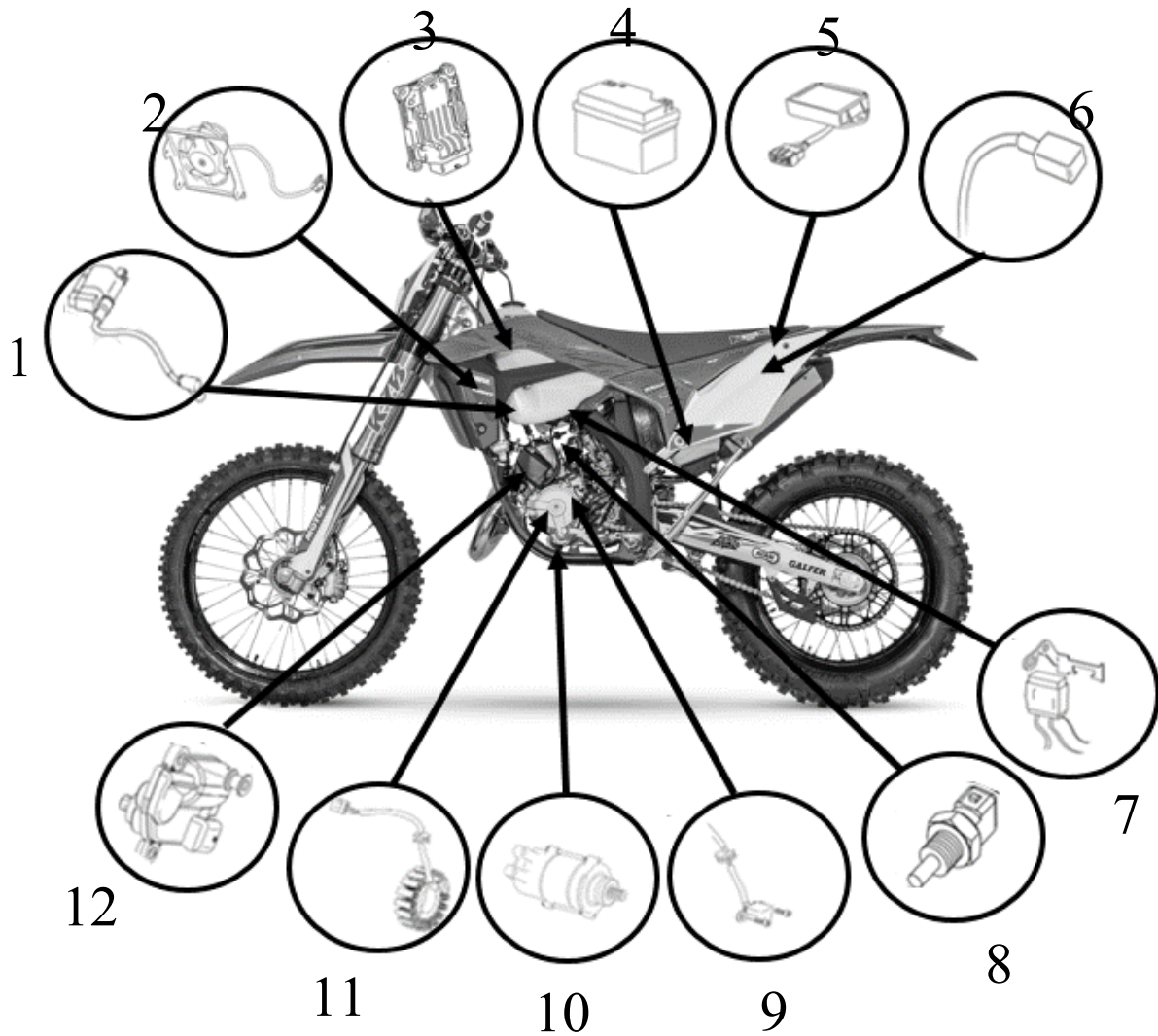
TABLE OF CARBURETOR SETTINGS

ALTITUDE ↓	TEMPÉRATURE →	-20°C To -7°C	-6°C To 5°C	6°C To 15°C	16°C To 24°C	25°C To 36°C	37°C To 49°C
3000 m To 2301 m	Air screw Idle jet Needle Needle position Main Jet	1,5 T 40 N1EE 3 168	1,5 T 40 N1EE 3 168	1,75 T 38 N1EF 3 165	1,75 T 38 N1EF 3 162	2 T 38 N1EG 3 162	
2300 m To 1501 m	Air screw Idle jet Needle Needle position Main Jet	1,25 T 42 N1ED 3 170	1,5 T 40 N1EE 3 170	1,5 T 40 N1EE 3 168	1,75 T 40 N1EF 3 162	1,75 T 38 N1EF 3 162	2 T 38 N1EG 3 162
1500 m To 750 m	Air screw Idle jet Needle Needle position Main Jet	1,25 T 42 N1ED 3 170	1,5 T 40 N1ED 3 170	1,5 T 40 N1EE 3 168	1,5 T 40 N1EE 3 165	1,75 T 40 N1EF 3 165	1,75 T 40 N1EF 3 162
750 m To 301 m	Air screw Idle jet Needle Needle position Main Jet	1 T 45 N1EC 3 172	1,5 T 42 N1ED 3 172	1,5 T 42 N1ED 3 170	1,5 T 42 N1EE 3 168	1,5 T 40 N1EE 3 168	1,75 T 40 N1EF 3 165
300 m To 0 m	Air screw Idle jet Needle Needle position Main Jet	1 T 45 N1EC 3 175	1,25 T 45 N1ED 3 172	1,5 T 42 N1ED 3 170	1,5 T 42 N1EE 3 170	1,5 T 42 N1EE 3 168	1,5 T 40 N1EE 3 168



ELECTRICAL PART

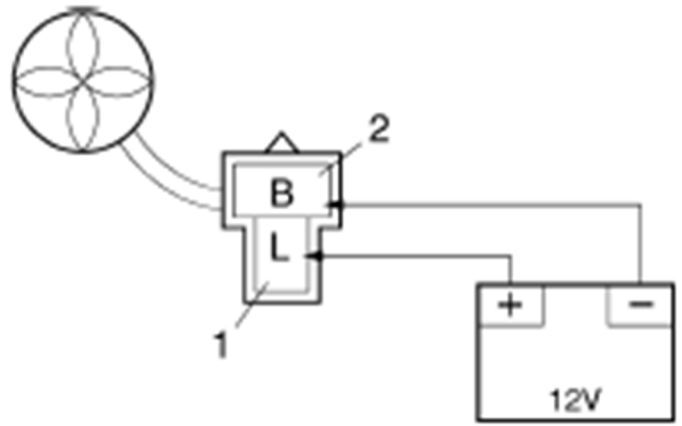
» Electrical components



Position	Designation	Position	Designation
1	Coil	7	CDI
2	Fan	8	Temperature sensor
3	ECU	9	Hall sensor
4	Battery	10	Starter
5	Regulator	11	Alternator
6	Relays	12	Valve motor

1- Fan control

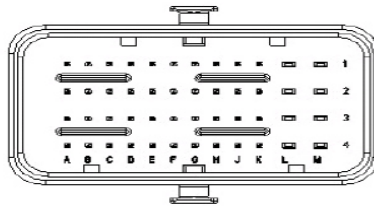
- Disconnect the fan from the harness.
- Connect a 12v battery directly to the fan as shown in the diagram.
- Check to make sure the fan run smoothly without any excessive noise.



2-CDI

1	VBENS	CAN_H	CAN_L	CPS-	CPS+	protecte d	protecte d	protecte d	protecte d	Main Relay	VBR	IGN
2	protecte d	Rpm Gauge	Canale r Purge	TSW	protecte d	MAP	SGND2	protecte d	Stop SW	FAN Motor (optional)	Hego HEATE R	protecte d
3	ACC_R LY	MIL	SGND1	STA2	ground	TIA	TPS	VEH SPEED	protecte d	protecte d	FUEL pump	PGND
4	VBK	VBD	STB2	STA1	STB1	TCO	Hego sens	protecte d	Carto SW	protecte d	INJ (0)	PGND
	A	B	C	D	E	F	G	H	J	K	L	M

- Grounds
- Supplies
- Logic or Freq inputs
- VR Freq inputs
- Freq outputs
- Analog inputs
- Logic or Analog inputs
- Communications lines
- 1A outputs
- ATM36 outputs
- ignition



3-Checking voltage regulator

- Voltage regulator:

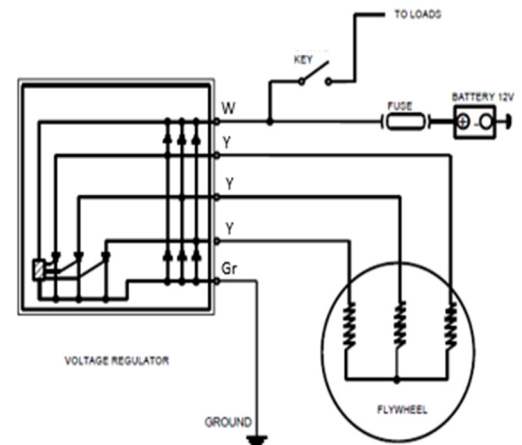
On regular output (With wire)

A 3500 RPM/min: 14.4V +/- 0.5V

- Checking diode bridge:

Connect a multimeter between the positive (With wire) and each of the phases (Yellow wire)

The resistance should only be measured in one direction.



ELECTRICAL PART

4-Battery check

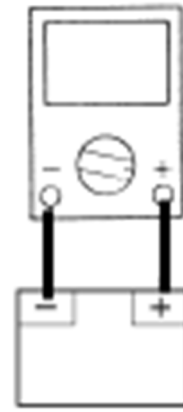
- Connect a multimeter to the + and - battery terminals and check its voltage

Value read:

12.8V → Battery charged

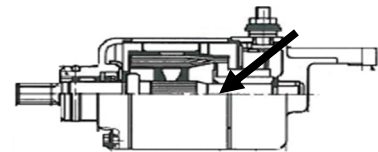
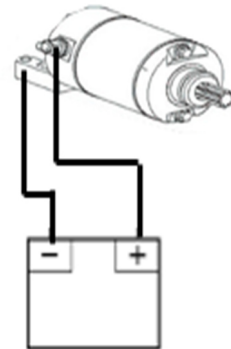
12.7V or less → Charge battery

Less than 12V → Replace battery



5-starter check

- Remove the starter and position it in a vice
- Connect a battery directly to the starter (positive on the starter terminal and the negative on the starter body) as shown in the diagram.
- In the event of abnormal operation, open the starter and clean the contacts between the starter brushes and the armature.



6-Checking the alternator

- Checking the resistance of the alternator windings.

Connect a multimeter between each phase of the alternator (Yellow wire) and measure the resistance.

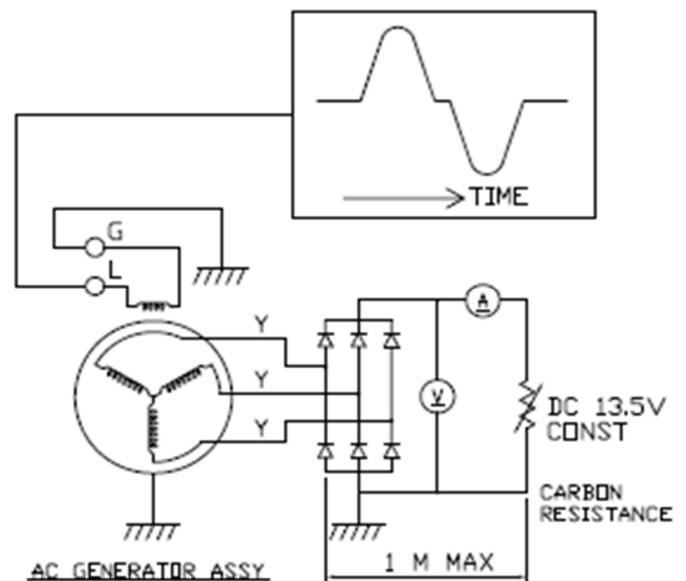
Winding resistance: $0.44\Omega \pm 15\%$

- Checking the output voltage of the alternator.

Connect the multimeter between each phase of the alternator (Yellow wire) and ground (Multimeter in alternative position) Measure the output voltage.

Idling: 22V \pm 2V

At 6000 RPM: 77V \pm 3V



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RENTHAL

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